

# **An Investigation of the Effect of Catalyst-Based Diesel Particulate Filters on Nitro-PAH Emissions**

*IDRAC Meeting*  
*February 6, 2002*

**Manufacturers of Emission Controls Association**  
[www.meca.org](http://www.meca.org)



## **Presentation Outline**

- Background
- NYC Test Results
- Summary of Test Program
- Results
- Summary



## **Background**

- SAE Paper 2001-01-0910
  - 371 ppm S fuel
  - Mode 9 and 11 testing
  - Catalyst-Based DPF
  - EGR
- Mode 11 Results
  - Good PM and HC performance
  - Good PAH performance
  - 30% reduction in 1-nitropyrene emissions
  - Decreased mutagenic activity

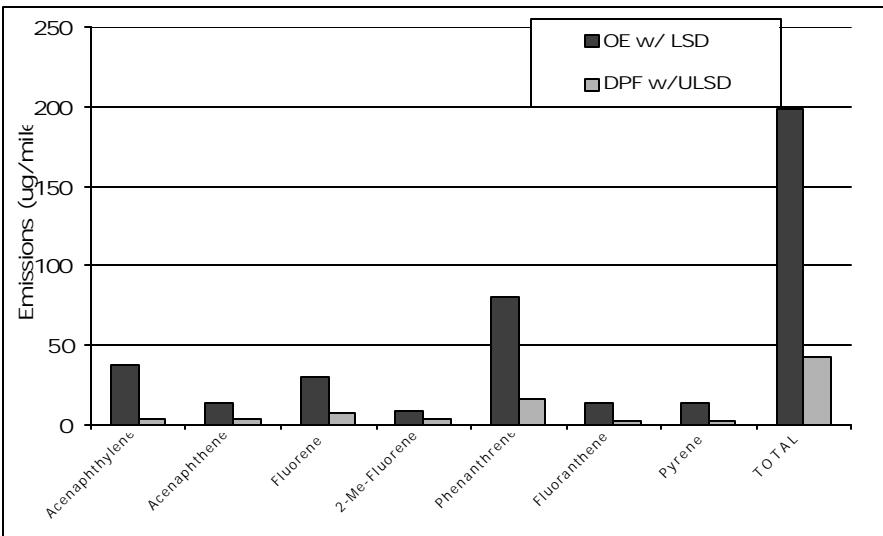


## **Background**

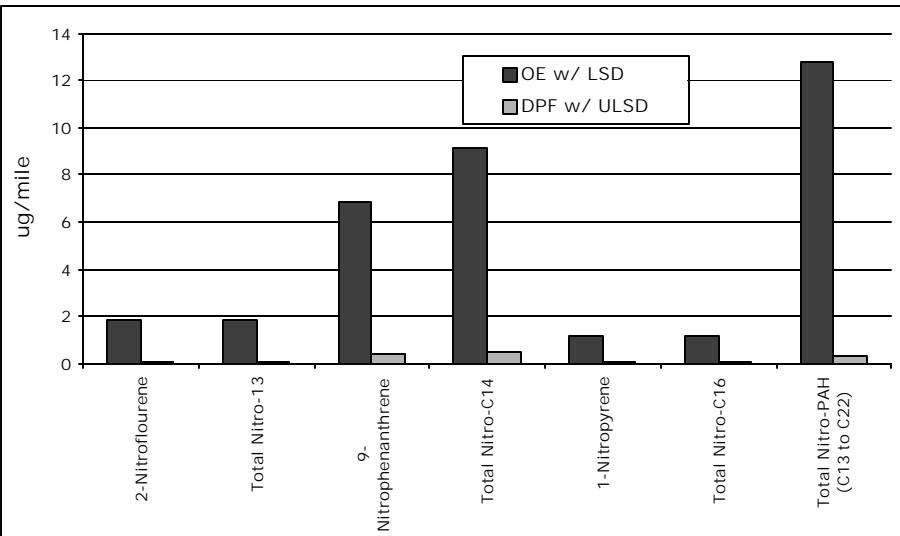
- Mode 9 Results
  - Good PM and HC performance
  - Good PAH performance
  - An increase in 1-nitropyrene emissions
  - SOF mutagenic activity inconclusive, XOC mutagenic activity very little



## PAH Emissions S50 Bus - NYB Cycle



## Nitro-PAH Results Bus 6019 NYB Cycle

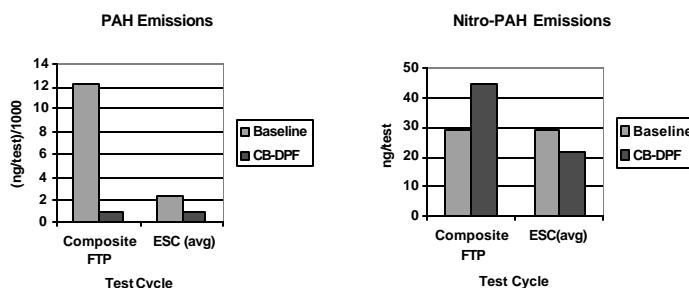


## Summary of MECA Test Program

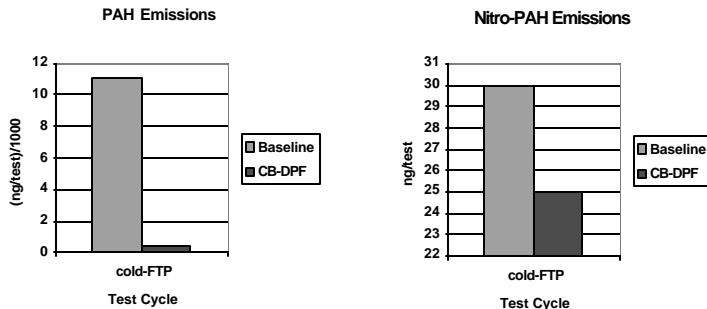
Step	Description	S (ppm)	Time (hr)	Temp (oC)
1	Generate Torque Map	350		
2	Condition Engine	350	40	
3	Cold and hot FTP	350		
4	Purge Fuel System	27	4	
5	Cold and hot FTP	27		
6	ESC	27		
7	Install CB-DPF			
8	Condition CB-DPF	27	24	420
9	Cold and hot FTP	27		
10	ESC (twice)	27		
11	Condition CB-DPF	<5	8	
12	Purge Fuel System	27	0.5	
13	cold FTP	27		
14	mode 9	27	1	360
15	mode 11	27	1	265



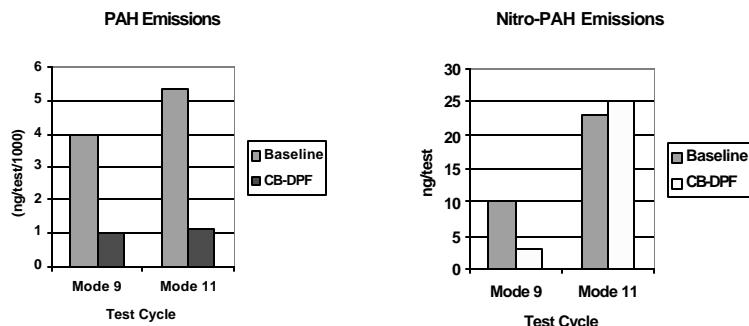
## 24 hr/27 ppm S Conditioned Results



## 8 hr/~0 ppm S Conditioned Results



## 8 hr/~0 ppm S Conditioned Results



## **Summary**

MECA is working to better understand the results of the investigation and will issue a report.



## **Acknowledgement**

MECA would like to acknowledge Magdi Khair of SwRI for his input and participation in this test program.

